

THE NORTH DAKOTA FARMER



50 Cents A Year

Vol. 17, No. 12

Alex Alin

117

Lisbon, N. D.

June 15, 1916

Fargo, N. D.



TROUP OF FARM BOY CAVALIERS

The Boy Cavaliers is a new organization originating at the Minnesota College of Agriculture. These Boy Cavaliers will do for the Country Boys what the Boy Scouts are doing for the boys of the town and city.

978.4
N814
Graham

Where the Wind Does the Work

TO WHOM IT MAY BE OF INTEREST:

The Windmill Electric Plant which we purchased from Mr. George Manikowske and which he installed in the month of February, 1915, has been running now within a few days of a year and every unit of the plant has as yet proved a perfect success and I think if there were any flaws or errors in the plant I should surely have come in contact with some of them. Its main fuel is the wind with a little distilled water for the batteries. We oil the generator and idler once a week; the wheel running on a large pair of Timken Roller Bearings needs but very little oil.

The generator which we have is a $1\frac{1}{2}$ K. W. and gives a flow of thirty amperes at fifty volts; but the wheel has power in almost any kind of wind we have to drive a generator of at least two kilowatts. Still the one which we have, if we had a storage battery large enough, would light two or three farms as large as ours. The switchboard is practically automatic, having an automatic regulator holding the voltage on the lights at 32 volts.

We have the Edison Storage Battery, being a 36 volt 225 ampere hour battery, which has furnished us lights and current to pump water into the pressure tank also to run cream separator, electric iron and vacuum sweeper. We are more than pleased with the plant and also the careful attention of Mr. George Manikowske in connection with the welfare of the plant.

We wish you the advantage of an Electric Light Plant generated by the wind and Mr. George Manikowske the success of selling you the same as he has the first and as yet the only successful Electric Windmill on the market.

Giving you my best regards, I remain

JOHN L. WILLIAMS,
R. No. 1, Cleveland, N. D.

OUR ABSOLUTE GUARANTEE OF SATISFACTION

is a certificate of deposit for the full amount of your investment until you are fully satisfied that your plant is worth every cent you have paid for it.

WIND ELECTRIC COMPANY, Inc.

"WIND ELECTRIC"

MEANS

Economy, Service and
General Satisfaction

MANUFACTURERS "WIND ELECTRIC"

Light and Power Plants
Switch Boards Wind Mills

MOTORS GENERATORS STORAGE BATTERIES

\$5.00

will give you light and power for
AN ENTIRE YEAR

"WIND ELECTRIC"

MEANS

ECONOMY, SERVICE, GENERAL SATISFACTION

GEO. MANIKOWSKE, Pres. B. H. PURDON, Vice Pres. WALLACE MANIKOWSKE, Secy. GEO. MANIKOWSKE, Treas.

WIND ELECTRIC COMPANY, Inc.
WYNDMERE - - - NORTH DAKOTA

THE NORTH DAKOTA FARMER

Vol. 17 No. 12

LISBON and FARGO, N. D., JUNE 15, 1916

50 Cents a Year

Let Us Reason Together

WHAT can we do to make the great Northwest a more delightful place to live in, to make better and more certain profits, on the farm and what to improve social conditions? These are measures worth striving for. Since this section of the Union is destined in time to become quite populous, to early lay the foundation for domestic contentment is of prime importance. This is more especially true of rural homes, since the greatness of this section must necessarily be reflected from the country districts.

Good Roads. Among the most pressing needs of the country are better roads. When we consider the fact that everything produced on the farms must be transported to some shipping point over the country roads the bigness of the good roads problem is made manifest. The size of the load that can be hauled and the rate of speed that can be made depends upon the firmness and smoothness of the road bed. Moreover, the comfort of both man and beast, the wear and tear of vehicle and horse flesh and the extra time and feed required also must be taken into account.

Aside from the question of freight-ing farm products to market is that of convenience. Going to school or to church, going on a visit or to town for mail or family supplies, the difference between good and bad roads can be readily appreciated.

Good roads enhance the value of farm lands.

It is estimated that bad roads cost the people of the United States not less than \$400,000,000.00 annually. The only way to enjoy good roads is to make them good. This task naturally falls upon the people who use them most—the farmers.

Good Schools. It is universally conceded that the country schools are inferior to village or city schools. Such should not be the case. Country children are entitled to educational advantages on a par with that offered in the best graded schools. The consolidated rural school affords such advantages, and even if it costs more the money is well spent. There is nothing in the way of common school education too good for the boys and girls that fill such a large and useful place in every rural district. Moreover, the necessary expense for conducting rural schools is

entertainments to suit the tastes of old and young alike. Debates, declamations, plays and musical functions can be staged by home talent as also lecture courses by college and university extension departments.

The consolidated, or even the district school, should be the community social center, not only for recreation and amusement, but as a gathering place for discussing civic and political questions.

Co-operation of this sort usually precedes co-operation in the larger sense—in business affairs.

The Country Church. The country church is on the decline. This should not be. In former years the country church filled a most important place in community life. It should be revived. This cannot be accomplished, however, except the church gets a vision of real community service. Questions of church government and sectarian doctrines must be given less prominence and more attention paid to things that have a bearing upon life and character. Instead of competing with each other for membership churches must co-operate for

EAST AND WEST

"Men look to the east for the dawning things,
For the light of the rising sun;
But they look to the west, to the crimson west,
For the things that are done, are done.

The eastern sun is a new-made hope
From the dark of the night distilled.
But the western sun is a sunset sun,
Is the sun of hope fulfilled."

no greater than for conducting village schools and farmers are as able to foot the bills as the town folk. With good roads and good schools the tendency to drift from country to town, on the part of young people, will be materially lessened.

Country Amusements. Young people also demand recreation. They are entitled to it. "All work and no play makes Jack a dull boy" is a true saying. Not only Jack, but Jack's parents would be greatly benefited by occasionally indulging in healthful recreation.

The consolidated school with its assembly hall and spacious flag grounds affords every opportunity for games or

clean living, honest business and Christian fellowship. In some communities communicants from all denominations hold union services with most satisfactory results. Instead of several weak organizations all join together and form one strong organization. The liberalizing spirit thus promoted exerts a salutary influence upon all and especially upon the young people. The Sunday school and the church thus unionized will naturally become a rallying point on the Sabbath day for all classes and the moral and religious tone of the community correspondingly improved.

Neighborhood friendliness is a desirable condition. Without it the suc-

cess won by selfishness or drudgery is shorn of every charm. Life degenerates into a struggle for material things that possess no real value and the best part of manhood and womanhood remains in a state of arrested development.

Every rural community, therefore, should co-operate in order to get the most out of life.

SOME EVILS OF TENANTRY

THERE is no digraces in being a tenant, even in a comparatively new country where land is cheap. In fact, many well-to-do farmers in the east and also here, began farm life as tenants. Under favorable conditions a renter should be able, within reasonable time, to own a piece of land. But are conditions favorable? Are they as favorable as they should be?

The fact that the percentage of tenants is increasing rapidly and regularly would indicate that conditions are not what they should be. Many consider that the high rate of interest is one of the principle causes of farmers being closed out and becoming renters where formerly they owned the land. Doubtless this is true in part. The fact that money lenders in many sections of the state are becoming landlords on a big scale would indicate as much.

The manipulation of prices of grain and livestock may be partly responsible. Many think such to be the case. Then we must take into account poor farming methods, lack of business ability and the persistence with which eastern methods are still applied to western soil and climatic conditions, for a part of the trouble.

But whatever the cause, any permanent increase of tenantry is to be deplored. The land should be owned by those who cultivate it. Otherwise it will not be properly cared for and soil exhaustion will be the inevitable result.

Besides, the country church and the rural school cannot be efficiently sustained except where the population is permanent. A shifting population at best is undesirable. A rural community made up largely of tenants naturally depresses the value of land.

In a state so largely dependent upon agriculture for its prosperity as North Dakota, every possible encouragement should be offered that will induce young men to look with favor upon farming as a desirable vocation. To make it desirable it must be profitable. Moreover, the facility for the purchase of land must not be overlooked. It goes against the Amer-

ican grain to be a permanent renter. If the tenant cannot see his way clear to eventually own a farm he will not engage in farming. He will, instead, seek some city occupation.

The time will soon come when, doubtless, a comparatively small farm will satisfy a farmer's ambition. In fact the future glory of the state will be reflected from the numerous comparatively small, but intensively cultivated farms. To secure these, arrangements must be made for long time loans at low interest rates on the amortization plan. What would otherwise be considered a fair rental will eventually insure ownership of the land by adopting this plan.

The state cannot overlook its interest in this matter. The state and not the Shylocks should be the beneficiary when it comes to a question of opportunity as to who shall own its land—the big proprietor or the small land owner. In other words the state, if true to its own interests, will encourage ownership of land as against tenantry, by making it possible to purchase moderate-sized farms on easy terms. This can never be accomplished, however, until the purchaser can secure the use of money on terms commensurate with the security that land offers. When it comes to a consideration of rural credits or any other arrangement by which farmers may secure money for development purposes or for the purchase of land or livestock, the interest of the banker or loan agent is not of primary consideration. Their consideration is only incidental. If the farmer's security will draw money from any other source at a lower rate of interest he is entitled to get it on the best terms. In other words the farmer's opportunity to secure money at the lowest possible rate of interest, whether thru state or government aid, should not be denied him because it will interfere with the business of bankers or loan agents.

Farmers have for many years borne the chief burden of tariff taxation for the protection of the manufacturing industries, and since agriculture is the fundamental industry of this state and largely so of the nation, and farmers being unorganized and practically without representation in Congress, it behooves the government, either state or national, to give reasonable safeguards to this great industry.

The North Dakota Legislative Assembly can pursue no wiser course than to enact a rural credits law next winter, possibly making the school funds the financial foundation for such institution. This large and constantly increasing fund can be put to no better use than to be loaned out to farmers offering ample security, and loaned

on terms as favorable as is now received for investment in school or municipality bonds.

HONESTY

WE sometimes hear it said that: "An honest man is the noblest work of God—and the rarest."

For any man, especially a young man, starting out in life with the idea that his success depends upon "doing" the other fellow is pursuing a course not only disreputable, but that ultimately will turn success obtained by such methods into the ashes of disappointment.

In the long run honesty wins more victories than dishonesty and leaves no pangs of regret. It makes a man feel that he is in good company when he is alone—when he is by himself.

Farmers often complain that when co-operative measures are adopted, some farmers will give their patronage to rival concerns that previously fleeced them and to remedy which the co-operative measure was established.

For instance, where a creamery is established and the full market price is paid for cream, some distant concern by raising, temporarily, the price of cream above its real market value, will get the farmers' patronage until the local creamery will have to close down. Then the price is usually lowered sufficiently to enable the foreign concern to recoup what was lost on account of having paid a higher price than the market warranted. Thereafter the price for cream is generally depressed to a point as low as the business will stand. And thus on account of a few farmers' disloyalty a profitable local enterprise is destroyed and those destroying it are beat at their own game. The whole community suffers loss.

The same is true of farmers' elevators. Notwithstanding the farmers' elevator may raise the price level of wheat several cents above what it was before there was competition, yet when the old line elevator raises the price of grain above its normal value, too many farmers desert the elevator that afforded them relief and patronize the one that formerly beat them.

While it may not seem actually dishonest to thus desert their fellow farmers who went to considerable expense to improve market conditions, yet it tends to prolong the period ere the grip of monopoly or unfair competition can be broken. Farmers must learn to work together co-operatively and honestly if they would realize full value for their farm products.

While co-operation in a large way may still be far off, the fact remains, however, that to begin with the lesson

of co-operation must first be taken up in more elementary form. If farmers cannot co-operate in managing a creamery, an elevator, a potato or seed grower's association, or a livestock shippers association without a number of them flunking or deserting for trivial reasons—for reasons that smack of dishonesty, then how long must the business of agriculture suffer before farmers can come into their own!

The only basis for effective co-operation is common honesty. Farmers must learn to trust each other and so act that trust placed in them will not prove disappointing.

Nor are farmers wholly to blame. They have been so long impressed with the idea that they cannot stick together, by those whose interests are best subserved by their **not** sticking together, that too many have come to believe that nothing short of a miracle can **make** them stick together.

This is a fallacy. They can stick together. They must stick together. They will stick together.

Note the prophesy!

DURUM WHEAT

Charles Christodoro, the invalid philosopher, of Pt. Loma, California—the man who never loses an opportunity to extol the value of durum wheat for general consumption—on its merits—says many good things in a private letter which the N. D. F. takes pleasure in giving to its readers.

As the northwest, of which North Dakota forms a conspicuous part, has the soil and climatic conditions adapted to producing durum wheat with seldom a failure, provided it is given proper cultivation, Mr. Christodoro's observations should prove of more than ordinary interest. (Editor)

In all 300,000,000 pounds of macaroni are consumed annually in the U. S. and of these pounds, half are imported under non-war normal conditions. The above figures are very near, **close enough**. So of domestic durum-made maccaroni—if nothing but durum were used and the softer-wheat-inappropriate-flours discarded—the macaroni men would use say, for domestic manufacture 150 millions of pounds of flour, which reduced to a durum semolina basis, excluding the bran, etc., would require but 3,000,000 bushels of wheat to take care of every pound of macaroni made in this country. If therefore it should be that Russia can take care of the European demand for durum wheat and none exported, then the durum farmer is once more thrown upon the mercy of the elevator man who, because of the lack of home specific demand for durum flour, again dis-

criminate against durum and off comes the ten, twenty or maybe thirty cents per bushel on durum just because it is durum and there is but a limited specific demand for it, the said durum being blended with No. 1 Northern and going out as standard patent flour at the standard patent price, at the flour mills. If N. D. yields say 20 million bushels of wheat if the discrimination is 10 cents per bushel, it is a simple matter of two millions of dollars leaving the state and double that amount if it be a 20 cent discrimination. But N. D. is a rich state and a little thing like that does not count.

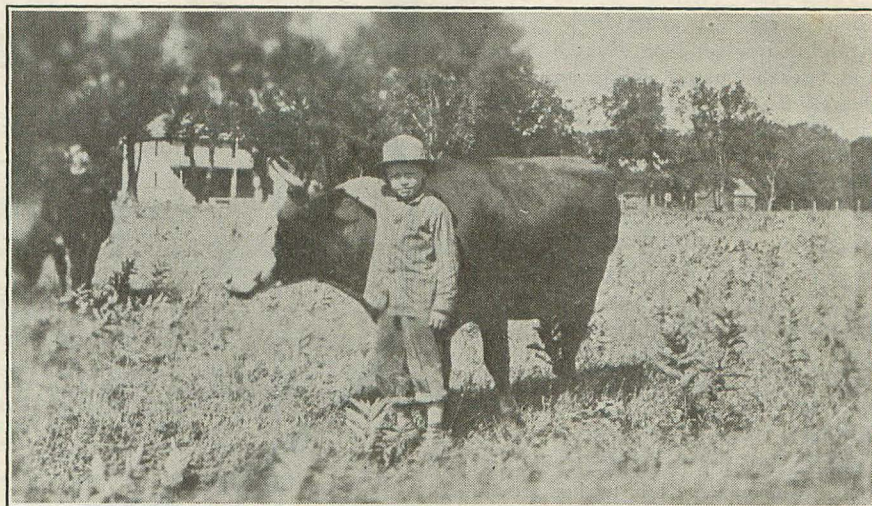
If for quick figuring we give N. D. one million of inhabitants and the farmers awakened to the fact, and the

WINDBREAKS NEEDED

The high winds of early May uncovered many acres of grain and smothered the grain on many additional acres. Wherever the soil is light and sandy it is apt to receive considerable damage from high winds.

Straw scattered over the area where the soil begins to drift, and especially if disced in, will go a long way toward checking the movement of the soil. Where the wind is strong and long continued, however, it is impossible to wholly prevent the drift, neither is it practicable to cover large areas with straw in time to prevent the soil from blowing about.

In all localities where the soil is light and inclined to blow it would



Pa and I raised Whiteface. We divide the profits. Watch' my herd grow.

townspeople as well, that patent durum flour "made dandy bread" and durum flour were religiously eaten, it would mean a consumption of five million more bushels within the state. But, of course, N. D. does not sell all the durum used for macaroni in this country, other states grow it. But unless some concert of action is taken by the states growing durum, both thru and by home consumption, and by publishing to the country, outside of the durum states, that durum flour does make **Dandy Bread**, (and it **Does**), the farmers as I said before will be made a football of by the elevators as before the war.

If I were President of all the commercial clubs of the state I would have a plate made of this little cut (referring to a picture in the Rotary) and would arrange to have it run at frequent periods in all the newspapers of the durum states. And I **would do a little outside magazine advertising, as do the cypress men**. By a little advertising they fairly galvanized their idle cypress swamps into life.

seem advisable, therefore, to plant shelterbelts of trees at intervals of not more than half a mile. The trees should be planted quite close together and the shelterbelts extend east and west as the prevailing winds that do the damage are either northerly or southerly winds.

Shelterbelts thus planted and cultivated for four or five years will begin to afford considerable protection, with assurance that the taller they grow the greater will be the protection.

Moreover, the longer the ground is cultivated the more it will be inclined to blow and for that reason the trees cannot be planted too soon to insure future protection. The railroads thru-out the prairie sections realize the economy of protecting their tracks by planting several rows of trees wherever drifting snows are liable to interfere with their operation in winter. This method of protection is cheaper in the long run than to maintain wooden snow fences, and the same rule will apply to drifting soil.

The farmers living in localities where the soil drifts so readily should

co-operate and plant shelterbelts and frequent intervals as above indicated. The protection thus assured is out of all proportion to the cost. Moreover, in addition to the protection they will insure against drifting soil they also militate against hot winds in summer; cold winds in winter; and will more than prove worth while in preventing foul seeds from drifting from weed infested to clean farms.

In this, as in many other apparent natural evils farmers must co-operate in order to counteract their influence.

A single row of gray willows planted next spring on soil plowed deep and frequently cultivated the present summer will be the proper way to begin the solution of the soil drifting problem.

Where a single row of willows is planted the cuttings should be set about three feet apart in a perfectly straight row and cultivated several times each season for four or five years. These cuttings can be had from any nursery at a trifling cost.

Aside from the protection these shelterbelts will offer their improvement of the landscape is worth while.

SWEET CLOVER

L. R. Waldron, N. D. Experiment Station

Sweet clover is a two-year plant somewhat allied to alfalfa. It resembles red clover in that it dies after the second year. It is ranker growing than either plant. While having a rather peculiar flavor, stock soon accustom themselves to it and often become greedy for it. Sweet clover has been found to be valuable in some states and it is commanding more attention in North Dakota. Perhaps its outstanding features for this state are (1) that it is adapted to short rotations (2) that it will grow successfully on very heavy clay or gumbo and on alkaline soils where other crops may fail. Where alfalfa fills the bill there seems to be little promise of its place being taken by sweet clover, but it is apparent that in many cases it will supplement the alfalfa crop over most of the state and be used to some extent in places where red clover cannot be grown successfully.

As sweet clover is a two-year plant it is almost necessary that it be grown with a nurse crop. While it may be more likely to catch with a nurse crop than alfalfa, experience has shown that failures are not unknown. If, in the average year, it is found that failures in getting a stand are rather common, this will tend to discourage its growth. Sweet clover is not so hardy as our hardier alfalfas

and consequently there is some danger of winter killing. This generally is offset in part if it is grown with a nurse crop as the stubble protects the plant. The expense of seeding sweet clover is greater than seeding alfalfa on an average because sweet clover has to be seeded oftener than alfalfa and seeding with a nurse crop, more seed per acre is needed. If a man has to buy sweet clover seed the cost of

the seed may be quite an item. Sweet clover has this advantage over alfalfa that the seed crop is dependable so that if sweet clover finds favor in North Dakota, farmers will largely raise their own seed and thus lessen the expense. Seed yields as high as 10 bushels to an acre are not rare. Sweet clover hay is not as good a quality as alfalfa hay as it is not so leafy. Care must be taken to cut it



Paint Health and Sunshine

into the "growing room" of your baby chicks. They are precious capital and protecting their health safeguards your profits. Germs of white diarrhea—the deadliest enemy of the baby chick—often lurk in brooders that seem to be clean. Make yours safe and insure thrifty husky youngsters. Paint the brooders inside and out with

CARBOLA
The Disinfecting White Paint

A snow-white mineral paint combined with the most powerful germicide known to science yet absolutely harmless to the chicks. Destroys germs of roup, canker and other fatal diseases. Kills lice, mites, nits, fly-eggs, etc. Comes in powder form and is ready to put on with brush or sprayer, as soon as mixed with water. No straining or bother of any kind. Paints and disinfects at one operation.

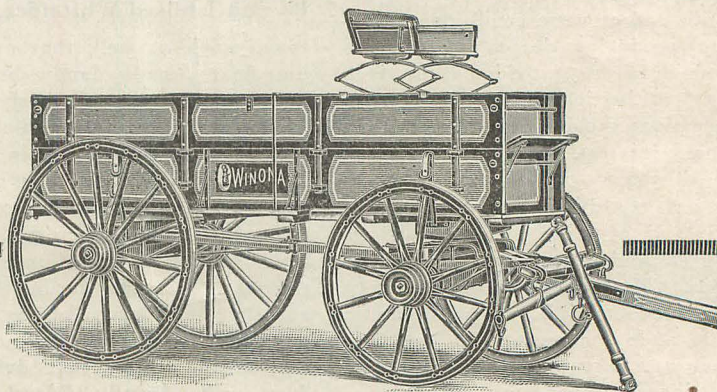
Use It Instead of Whitewash

Will not flake, peel or blister. Keeps all poultry houses, cellars, dairies, stables, etc., clean and sanitary. Endorsed by Experiment Stations. Used by largest and most careful breeders and dairymen. Your dealer will supply you. If not, send us his name and your order. Remember, there is nothing that is "just as good". Satisfaction guaranteed.

10 lbs. (10 gals.) for \$1 and postage. 20 lbs. (20 gals.) for \$2 delivered free. 50 lbs. (50 gals.) for \$4 delivered free.

A trial package, enough to paint and disinfect 250 square feet, sent by parcel post for 25 cents.

CARBOLA CHEMICAL CO., DEPT. J, 7 EAST 42d ST., NEW YORK CITY



Strongest and Lightest Running

THE Winona is the strongest, lightest-draft farm wagon you can buy. Axles won't break—rims won't split—hubs won't check—boxes will stand the siege of steady use. If you want a fine-looking wagon that will give you uncommon length of service, see the Winona.

WINONA FARM WAGON

BUILT from tough, solid, "bone dry," seasoned timber—ironed with extraordinary care. Outer Bearing Axles, full Clipped Gear, Riveted Bent Felloes, Strongest Skeins, Poles and Hounds. Boxes extra cleated and braced. Comfortable Seats. Durably painted with best quality paints.

Write for Catalog F showing many exclusive features of the Winona.

WINONA WAGON COMPANY, Winona, Minn.

before it commences to blossom. Many are afraid because of its weedy character. Experience has shown that it need not become a weed if reasonable care is given it. This so-called weedy character is really a point in its favor for this shows it to be very aggressive and a good fighter and these are characters that we need in a successful forage plant under semi-arid conditions.

DUST PREVENTION

W. C. Palmer, N. D. Exp. Sta.

Dust is one of the nuisances of a road. It is disagreeable both to the traveler and to the one living near the road. In many places the roads are oiled but this is expensive. The road drag is a good dust preventive, and the cost of using it is small. Much of the dust in a road comes from the wearing down of ruts and the ruts were formed in the road because water stood in it. The road bed that is well-crowned in the middle and packed hard will not loosen up much in wet weather and if no ruts are formed there will not be much material to form dust. The drag should be run over the road after every rain. In this way the soil is laid on the road bed in thin layers and is packed on.

When the road bed is hard and crowned in the center it will hold just about the right amount of moisture unless it is sandy. Grass and weeds growing along the road bed send their roots under it and thus remove the moisture that holds the soil grains together. The weeds and grass should not be allowed to get within several feet of the traveled part of the road.

Clay or loam will pack hard when it contains the right amount of moisture, when too wet it becomes soft and when too dry the soil grains do not stick together. The best way to keep a fair amount of moisture in the road bed is to keep it at least 18 inches above standing water. To keep it packed hard and well crowned in the middle and to keep a strip on each side free from weeds. When ruts are allowed to form they will be ground to dust as soon as drying weather sets in. Use the road drag to keep ruts from forming.

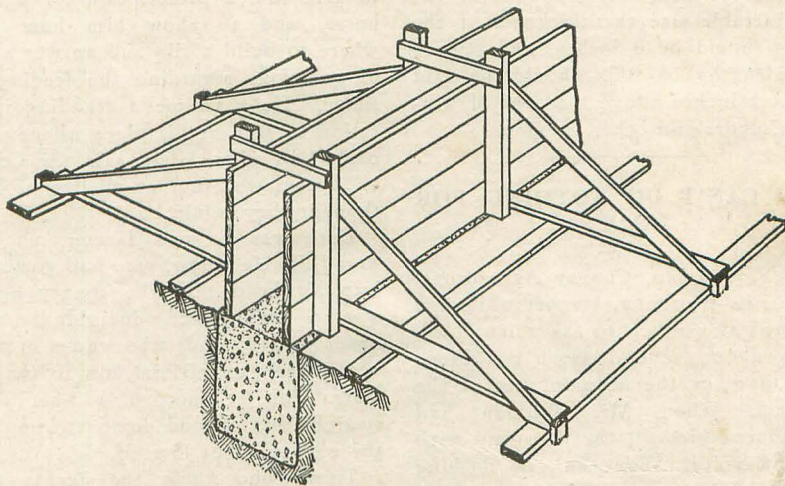
SIMPLE CONCRETE WALL CONSTRUCTION ON THE FARM

Concrete walls are easily constructed and at low cost. These walls are especially suitable for farm entrances or enclosures about farm buildings. Where merely serving the purpose of an enclosure, such as a barnyard or

poultry yard, it is not necessary to construct the wall more than 6 inches thick. Simple methods of construction are as follows:

The most important consideration in the construction of any wall is a firm foundation, sufficiently deep to prevent heaving by frost. In most localities this distance is 3 to 4 feet. When the earth is firm and the sides of an excavation will stand up vertically, it is unnecessary to use wooden forms for the portion of wall beneath ground level. A trench of the

to two and one-half feet cubic of sand to 5 cubic feet of crushed rock or pebbles. When the trench is filled with concrete to ground level, a simple form, as shown in the drawing, is set in place. The surface of the foundation at ground level must be entirely free from dirt, chips or other foreign substances and the concrete roughened before depositing upon it the above-ground portion or wall proper. The minimum thickness of walls for very light structures may be 4 inches, although it is very difficult to deposit concrete



required width is dug, taking care that the sides of the trench are straight, vertical and fairly smooth. The width of all walls below ground level should be at least 12 inches. Where sandy or crumbly earth is encountered, it is best to use wooden forms below ground level. In depositing the concrete in the foundation trench see that no dirt falls into it as this would weaken the wall. The proper proportions for walls below ground are 1 bag of Portland cement

in a wall this thin. A thickness of 6 inches is better for most purposes. The proportion of walls above ground should be 1 bag of Portland cement to 2 cubic feet of sand to 4 cubic feet of crushed rock or pebbles. Bank-run gravel may be used if the pebbles are separated from the sand by screening thru a one-fourth-inch screen. For the above-ground portion of walls the forms should be made with care, the boards being carefully matched so that a smooth surface will be obtained in



Three Hundred Million Bushel Crop in 1915

Farmers pay for their land with one year's crop and prosperity was never so great.

Regarding Western Canada as a grain producer, a prominent business man says: "Canada's position today is sounder than ever. There is more wheat, more oats, more grain for feed, 20% more cattle than last year and more hogs. The war market in Europe needs our surplus. As for the wheat crop, it is marvelous and a monument of

strength for business confidence to build upon, exceeding the most optimistic predictions."

Wheat averaged in 1915 over 25 bushels per acre
Oats averaged in 1915 over 45 bushels per acre
Barley averaged in 1915 over 40 bushels per acre

Prices are high, markets convenient, excellent land low in price either improved or otherwise, ranging from \$12 to \$30 per acre. Free homestead lands are plentiful and not far from railway lines and convenient to good schools and churches. The climate is healthful. There is no war tax on land, nor is there any conscription. For complete information as to best locations for settlement, reduced railroad rates and descriptive illustrated pamphlet, address

W. E. BLACK, Clifford Block, Grand Forks, N. D.

Canadian Government Agent.

NO PASSPORTS ARE NECESSARY TO ENTER CANADA

the finished wall. This result is obtained by spading the concrete as it is being placed in the forms. Spading consists of thrusting between the form and the fresh concrete a thin wooden paddle. This serves to force the stone back into the concrete, allowing a rich mortar coat to flow against the forms. In walls above ground it is well to reinforce with small steel rods or wire mesh. This reinforcing runs in both directions and serves to prevent any cracks due to settlement or other causes.

Walls for buildings can be constructed as described, but for buildings of considerable size the thickness of the walls should be 8 inches, and one or two lengths of rods should be laid about 2 inches above the tops of windows, doors and other openings.

YOU CAN'T DO NOTHING FOR ME

B. S. Tedman, County Agricultural Agent, in Wyoming, a short while ago stopped at a ranch to ask a few questions about general farm conditions and to make the acquaintance of the rancher. When Mr. Tedman had introduced himself, the man said with a gruff voice, "You can't do nothing for me, young man" In commenting on it afterwards Mr. Tedman said, "I knew by the way he talked that he had had a bad dream about these county agents. He was putting up hay, and as he had one man on the stack and was driving the godevil himself, he had to get off for each load to run it up for the stacker. It was nearly noon, and I knew he was in a hurry to finish that stack before dinner, so when he drove away I put the hay up for him. After a couple of loads he began to grin and said he wished I had come sooner, and before long he asked me to stay for dinner. At dinner we got to talking and I found out some of his troubles. He got interested and fired dozens of good hard questions concerning his own farm at me. I was able to make some suggestions that he said he had never thought of, and which he would try out.

He finally asked me if I knew anything about "Fords." We looked his

car over and found that he had stripped all the gears, and that he needed the machine badly the coming Saturday. He was up against it for sure. As I was going to town I loaded all the rear axle, housing, wheels, drive shaft, in fact, all of the car that was loose, into the back of my machine and took into the town of Wheatland for repairs. The crippled gears were mended good as new and sent back to him Friday. It was a small but a true service and greatly appreciated.

While I was at his place I was able to give him a prescription for a sick horse, and to show him how and where to build a silo and answer a lot of questions regarding the feeding of silage. He gave me a standing invitation to stop at his place whenever I could and when I left, said the County Agents were not at all like he had thought they would be."

Here was a good farmer, an all-round likable fellow, who had gotten it into his head that the county agent was a silk-gloved individual who never works, and who came around occasionally to tell him how to run his farm. All he needed to set him straight was a good demonstration by the county agent himself.

Those who know the agents and understand the true purpose and object of their work, are its strongest supporters and biggest boosters.

WAR ON GOPHERS

The war on the North Dakota gophers or more properly ground squirrels was launched in eight

counties this spring. These counties were Cavalier, Towner, Rollete, Bottineau, Renville, Ramsey, Benson and Ward. The campaigns were in some cases by the county and in others by townships. In the counties with county agents the township system was used.

U. S. Ebner and James Silver were kept busy making demonstrations in mixing the poison and in some cases they mixed up quantities for use in the spring.

The federal government also had a number of men at work at the Fort Totten Indian Reservation to poison the gophers in that area.

The poison that was made use of is made up according to the formula worked out by the North Dakota Experiment Station and the United States Department of Agriculture. It is sure death to the gophers and the cost for enough poison to cover a quarter section runs between one and two dollars.

DURUM WHEAT WANTED

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DURUM WHEAT also MILLET SEED

in either car lots or small shipments. Mail samples for our bid.

FARGO SEED HOUSE

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"PREPAREDNESS" OVERHAUL YOUR AUTOMOBILE NOW

Get ready for the Spring business. We can give you service in this line, as well as others, for we have expert Welders, Machinists and Mechanics who with our equipment are able to accomplish the most difficult jobs. We rebores motor car and gas engine Cylinders and fit them with larger pistons and rings. We use the very best of material that can be had. Auto Metal Bodies and trailers built, write for prices.

DAKOTA WELDING AND MANUFACTURING CO.,

Telephone 926. 203-5th St. N. FARGO, N. DAK.

In order to secure permanent results it is necessary that the poisoning be thoroly done. If even a small area is skipped the gophers left on this will soon spread onto the surrounding fields that have been cleaned up.

There has been a good deal of difficulty in securing the strychnine alkaloid. The bean from which it is made comes from India and due to the hazards in shipping the amounts brought in are small. Enough was, however, located and secured in order to carry on the campaign in the eight counties. Saccharine, another ingredient in the poison, comes almost wholly from Germany. The war has cut off importations so that this has also become scarce. 1916 will see large areas in North Dakota cleared of the destructive ground squirrels.

FARM LITERATURE

By Arthur Murphy

IF you go into the office of a doctor, lawyer, minister, or any professional man, you will see from a few dollars' worth to several hundred dollars' worth of books magazines and other literature bearing directly or indirectly on the main lines of his profession. Besides the matter that comes within their direct interest you will find in every case literature on subjects that may seem at first to be of a foreign nature. But nevertheless these men and these women try to keep at least fairly well posted on all the more important every-day subjects. This practice of studying subjects outside their respective lines of work broadens their minds, increases their intellect, and in general brings them into a better and larger environment, so necessary even with the higher professions.

On the other hand if you go into the average farm home you find scarcely any literature on not only common subjects, but on things that are no doubt of the greatest value to the farmer. When one has given this subject some thought he little wonders at the numerous mistakes made by the average tiller of the soil. To take away the reading matter from the professional man would be almost the same as to isolate him from the social and business world. His best guide to standards of civilization would be gone. He would become utterly restless. By study and practical experience we have learned that real farming in its true sense is as much a profession as any occupation in the long list. Therefore when we go into the home of a farmer and inquire as to his library, daily or weekly papers, his magazines or any other literature of whatever

nature, and are confronted with the answer that he does not believe in so-called "paper farming" and that he earns his money too hard to give it to newspaper syndicates or a book trust, we need not go any farther or ask any more questions in order to write a pretty fair description of his livestock, machinery or crops.

It is with much gratitude that we learn that the farmer who cannot see the advantage of the civilized world, remote from him, being brought to his home in the form of good books and papers or magazines, are greatly in the minority. Furthermore this condition is growing less and less every year. With the advent of the extension courses offered so cheaply, the advantages offered by the Agricultural Colleges, the holding of Farmer Institutes within easy reach of the rural districts, those who are back of such work will soon see the great benefit they are rendering blossom out into a condition that will mean millions of dollars of wealth to the nation.

There are very few of us so full of imagination that the briefest article on some subject that is of interest

will not impart a new idea or suggest a better method of doing something.

If the farmer's library is enlarged in the right direction, even a little each year, he will soon have information that will prove the most valuable asset on the farm. Expense is by no means the standard by which to judge a library. Take for example the large number of bulletins issued by the different colleges, institutes, boards of trade, chambers of commerce, of cities, U. S. bureaus and departments, etc. All these institutions are pleased to send the literature they have for a small amount to pay postage. Many of the bulletins are even free for the asking. Some of these same pieces of literature contain the efforts of experts along the various lines of research and experimenting. Then another method of obtaining information, for instance in farm mechanics, is thru the advertising columns of any reliable farm paper. Just see the large number of circulars and catalogs that 50 cents postage will bring. By comparison you may become fairly well informed as to the merits and demerits of the various machines adver-

Get Rid of WORMS

and INDIGESTION



Do you know that ninety per cent of all live stock losses are caused by Worms and Indigestion and both these conditions are preventable? Get rid of the blood-sucking worms and you will remove the chief cause of losses. Wormy animals can't thrive; the food they eat is largely wasted; they run down in condition — become easy victims to diseases. Worms eat up your high cost feed — bring on indigestion — cause heavy loss. Get rid of the worms with—

The Great Worm Destroyer **SAL-VET** **The Great Live Stock Conditioner**

The medicated salt without Antimony. Give your animals free access to it; they'll rid themselves of worms. Costs only 1-12 of a cent a day for each sheep or hog and only 1-3 of a cent a day for each horse or head of cattle. **SAL-VET** will do the work; I'll prove it or no pay.

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Fill in the coupon below—tell me how many head of stock you have; I'll supply you enough **SAL-VET** to last your animals 60 days. You pay the freight when it arrives; feed as directed, make a specific report at the end of 60 days. If **SAL-VET** does not do what I claim it will cost you nothing.

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Cleveland, Ohio



PRICES

40 lb. pkg. - \$ 2.25
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Extra discount in larger quantities.

Not less than 40 lbs. sent on this 60-day offer. 60 days' trial are based on 1 lb. of Sal-Vet for each sheep or hog and 4 lbs. for each horse or head of cattle. Dealers sell Sal-Vet at above prices but in the far West and South the prices are a little higher on account of the extra freight charges.

THE FEIL MFG. CO., Chemists
Dept. 141-16 Cleveland, Ohio

Supply me enough **SAL-VET** to last my stock sixty days. I agree to pay the freight, feed it as directed and will then pay for it if it does what you claim. If it fails and I so report specifically in sixty days you are to cancel the charge and I will owe you nothing.

I have.....hogs.....sheep.....horses.....cattle

Name

P. O.

Shipping Sta.....State.....

tised by the different concerns. You will also become acquainted with the different prices of machines, freight rates charged by the various railroads, and in fact you will learn about labor-saving appliances, etc., that may never have occurred to your mind. This is but a brief suggestion as to the means

of obtaining a better education at the least expense.

If conditions at the start will not permit, the purchase of only one book, on the breeds of livestock, by a reputable author, will start things right in this direction. Then there are good books for sale on general poultry raising and management as well as several volumes on grasses and grains, farm crops, methods of tillage, irrigation, principles of breeding, dairying, feeds and feeding, agricultural chemistry, stock judging etc. A mere reading if not studying any of these or similar works will surely germinate a seed that perhaps has been dormant for years and stimulate one to taking a more practical view of the vital agricultural problems that confront us every day. It is coming to the time when the farmer must rely upon his own knowledge and his own methods of finding the true solution of not only many problems peculiar to his individual farm, but to the great political issues, such as the justness of one judge's decision, or the injustice of some other judge in regard to things that pertain to the welfare of the rural people. Can you blame the man who has studied the vital points of an important issue for advocating the points in favor of his own business? It is the man affected by the wrong explanation that is to blame if he leaves the study of problems that may make or break him, to those only interested in the greatest material gain. We might go on and give example of the losses of farmers and sometimes other business men, simply because they thought it a waste of time to devote even a few minutes a day to learning something of the things upon which they depend for a living. If a new thought is imparted to the reader of these few lines in the spirit in which it is intended the writer will feel amply repaid for the effort.

DOES EDUCATION FOR THE FARMER PAY?

O. R. Johnson of the Missouri College of Agriculture

In making the comparison of farmers with rural school education and those who went farther than rural school, Mr. Johnson used data secured in a farm management survey, conducted by the College of Agriculture in the western part of Johnson County. The training secured by the second group in addition to their school education amounted on the average to practically two years in the high schools.

"The better-educated farmers keep about one and one-sixth times as much stock as the others, as is shown by the number of acres of crops grown for each animal unit kept," says Mr. Johnson. "The man with more school training also handles more crops with each workman he employs. Each workman on farms of the first group of farms handles 53.5 acres of crops, while a workman in the second group of farms handles 61.2 acres. In other words, the better-educated man

Caught 51 Rats One week

Trap resets itself; 22 inches high; will last for years. Can't get out of order; weighs 7 pounds. Twelve rats caught one day. Cheese is used doing away with poisons. The trap does its work and never fails and is always ready for the next rat. When rats and mice pass the device they die. Rats are disease carriers; also cause fires. These Catchers should be in every school house. Rat Catcher sent prepaid on receipt of \$3. Mouse Catcher, 10 inches high, \$1. Money back if not satisfied.

H. D. SWARTS

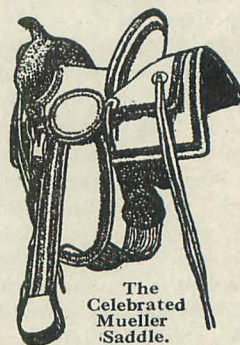
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Universal Rat and Mouse Traps
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They are the most economical and "care free" tires made and are used where tires must be depended on and tire troubles cannot be tolerated. Many Double Service style tires are in use in the U. S. government and European War service.

Our output is limited to a certain amount, but for a short time we offer the following reduced special prices as an introductory offer:

PRICES

Tires Tubes		Tires Tubes	
30x3 in.	\$8.00 \$2.30	36x4 in.	\$17.45 \$4.65
30x3 1/2 in.	10.55 3.10	36x4 1/2 in.	21.20 5.00
32x3 1/2 in.	12.75 3.20	38x4 1/2 in.	22.50 5.75
33x4 in.	15.75 4.20	37x5 1/2 in.	23.60 6.20
34x4 in.	16.70 4.35	37x5 in.	25.30 6.60

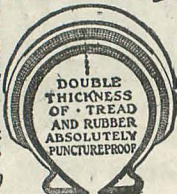
All other sizes not included in above list also furnished. Non-skids at 10% additional.

Terms: Payment with order at above special prices, a 10% discount allowed on orders for two or more tires. All personal checks must be certified.

Try these tires now and be convinced of their very high qualities. Sold direct to the consumer only.

Descriptive folder upon request. Write for it.

Double Service Tire & Rubber Co., Akron, O. Dept.



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Let us tell you how to eradicate wrinkles, pimples and other facial blemishes and restore the fresh complexion and contour of girlhood. We send this book to you Free for your name and address.

The Peerless Toilet Supply Co.

Bismarck : : N. Dak.

is doing about one and one-fifth times as much as the man with less school training.

"There are several points which the data bring out. The one of greatest interest, perhaps, is that the better-educated farmer is making an income 71.4 per cent greater than the man with less education. After the labor income of the man with less school training is adjusted to allow for difference in size of business, the man with more education still has about 40 per cent greater income than the man of the first group. The other factors indicate strongly that the better-educated man has his business better organized. The fact that he gets slightly better yields and has a system which furnishes him more productive labor, and that he keeps more livestock, seem to show that he has somewhat greater ability in the organization and handling of his business. Because of this fact, it is found that he makes enough larger labor income to pay interest on approximately \$5500 capital, and allowing for the difference in size of business he still makes enough larger income to pay interest on \$3700.

"Other studies have shown that with this size of farm each acre that the farm is increased will add approximately \$2 to the labor income, but that the investment per acre on the two farms is not enough different to make any difference in the income in favor of the better-educated man. Also, the difference in crop yields is not great enough to change the labor income materially. With these facts considered, it would appear as tho the man who has received more mental training has increased his efficiency thereby to the extent of making interest on a capital of at least \$3700. This does not seem to be a bad investment for the small amount of time he spends in getting the additional training and the probable expense of obtaining this training. While other factors may have played some part in his greater earning capacity, yet from a careful study of the organization of his business, it appears that education must have played a very large part in his greater earning ability."

CUTWORM REMEDIES

Poisoned-Bran Baits Effective—Ditches, Barriers, or Arsenical Sprays for Extreme Outbreaks.

Tomatoes, cabbages, cauliflower and other vegetables and garden plants, and especially those which are started under glass and transplanted, are subject to serious injury by cut-

worms. These pests appear sometimes in great numbers in the spring and early summer, and frequently do severe injury before their ravages are noticed. Their method of attack is to cut off the young plants at about the surface of the ground, and as these caterpillars are of large size and voracious feeders, they are capable of destroying many plants in a single night—frequently more than they can devour. Every year these insects, working generally thruout the United States, have destroyed hundreds of thousands of dollars' worth of crops. By the timely application of remedies, however, as has been demonstrated thru field agents and other entomologists of the Department of Agriculture, they readily can be controlled, and large areas have been successfully treated. The usual method of control is by the use of poisoned baits.

How to Mix and Apply Poisoned Baits

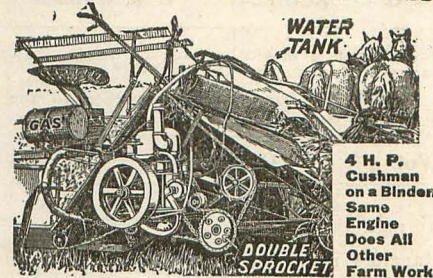
Take a bushel of dry bran, add 1 pound of white arsenic or Paris green, and mix it thoroly into a mash with 8 gallons of water in which has been stirred half a gallon of sorghum or other cheap molasses. This amount will be sufficient for the treatment of about 4 or 5 acres of cultivated crops. After the mash has stood for several hours, scatter it, in lumps about the size of a marble, over the fields where the injury is beginning to appear and about the bases of the plants set out. Apply late in the day, so as to place the poison about the plants before night, which is the time when the cutworms are active. Apply a second time if necessary.

Spraying with Arsenicals

In extremely severe attacks by cutworm to choice plants there is sometimes no opportunity to prepare the poisoned bait. In such cases an ar-

senate of lead or Paris green spray will answer quite as well. In one instance a parsley field was sprayed with 4 pounds of arsenate of lead to 50 gallons of water, which killed all the cutworms, whereas if they had been left alone for a day or two longer the field probably would have been destroyed. The result, however, was a perfect stand—the best ever made by the grower. In this case five applications were made.

Saves a Team



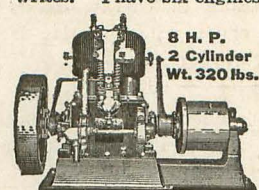
Cushman Binder Engines

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Thousands are in use in the Northwest, doing all-purpose work, that were bought for binder use. A 4 H. P. engine that will stand up on the binder will deliver the goods on any stationary job.

Cushman Engines are Throttle Governed and run easily and quietly. May be run at any speed—speed changed while running. Direct water circulating pump prevents overheating, even on all-day run. Equipped with Schebler Carburetor and Friction Clutch Pulley. Very light weight and easy to move from job to job. 4 H. P. weighs only 190 lbs.; 8 H. P. only 320 lbs. Sizes 4 to 20 H. P. Not a cheap engine but cheap in the long run.

Iver A. Madson, Wheatland, N. D., writes: "I have six engines and the Cushman is the best. It does not jump like a heavy engine. On the binder it is a great saver of horse flesh. It will do all you claim and more too." Ask for free engine book.



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We can rebores and grind your cylinders, fit new oversize pistons and rings, make and fit new crank pins, straighten shafts, bore and bush gears and clutches or do any kind of machine work. Refue boilers and replace stay bolts. We carry in stock all sizes of stay bolts, patch bolts, bracket bolts, rivets, boiler flues, stay-bolt taps and boiler taps, shafting, shaft hangers, cast iron pulleys, woodsplit pulleys. Write and let us quote prices on any work you have.

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Vol. 17 : **JUNE, 1916** : **No 12**

Don't stop working. Too many farmers move to town—to die.

What boy or girl will make the best record this year growing corn?

Young man, start a savings bank account. Do it this year. Do it now.

Sweet clover seems to adapt itself to conditions that are unfavorable to most other forage crops..

When too much time is required for tinkering an old machine it is time to fire it into the scrap pile.

The biggest thing in this world is agriculture and those who practice it should be big in proportion.

The man that sells milk isn't complaining much about interest rates. He doesn't have to borrow money.

A farmer can't control the weather but he can control tillage; and tillage, rather than weather, controls the yield.

When farmers adopt an absolutely safe system of farming they will compel bankers to lower the rates of interest.

Any man that has the courage to challenge unlawful monopoly must expect to be shamefully and ruthlessly defamed by all the agencies at its command.

"Safety first" should appeal to the farmer with as much force as to the railroad president or the banker. The farmer that will not farm safe should not make faces.

But few farmers ever become millionaires, nevertheless millions of industrious families become well-to-do even on small farms, by combining economy with diligence.

We have demonstrated in this state that permanent prosperity comes from the soil. This being true, the state is signally favored with the best soil that can be found in any country.

Text-books have not yet appeared on pig-feeding as an educational process, but a few thousand North Dakota school children are taking a long shot at the business as an experiment in thrift.

Every farm should have a workshop where the boys can exercise their skill in repairing farm implements and making things. Farming being largely a mechanical business, the repairing as well as handling of tools is necessary.

The safer the loan the lower the rate of interest that will be charged. The one all-wheat-crop system of farming is seldom safe, hence the necessity for diversified farming in order to make bankers eager to loan money at a very low rate of interest. Uncle Sam only pays 3%.

Don't forget Biddy, the American hen, that bird which produces more wealth and gets fewer thanks and less credit than any other single economic force among the productive industries of the country. Every farm home and most city homes should give poultry a prominent place in the scheme of thrift, without which but few farmers or laboring families in town can make headway against increased cost of living. Certainly a coup of nice chickens will not only supply the family with many comforts for little trouble and small expense but it affords a delightful responsibility for the children together with much that is interesting and educative.

In talking of university education Dr. William H. Allen declared that the influence of men of wealth has been extended to Wisconsin and other state institutions and that in his opinion President George E. Vincent of the University of Minnesota should not serve as an officer of the Rockefeller foundation and that President Van Hise of the Wisconsin University should not serve as an officer of the Carnegie foundation.

"These men of big business are extending their influences over higher education," said Dr. Allen. "Their

influence is bad."—Minneapolis Journal.

Land settlement and Rural Credits are being investigated in California with a view to the public welfare rather than for the advantage of real estate speculators and loan sharks. This sort of investigation should appeal to every new state, not excepting even our own commonwealth.

From the tremendous amount of vituperative criticism found in the public press these days, hurled back and forth between the pretended friends of the farmer, the farmer himself must feel pretty helpless. And this sort of bunk will continue until farmers assert their combined influence to show the other fellow, and especially the professional politician, that they don't need any sympathy; that they can manage their end of the economic and political business without any gush or dictation from men who prefer office-holding to honest labor. It seems funny that the great majority of hard-headed intelligent farmers should provoke so much solicitude on the part of their sympathetic friends—the politicians.

WITH THE PUBLISHER

This issue closes the 17th volume of the North Dakota Farmer. For fourteen years the writer has been identified with this paper. Never for a moment has he lost sight of the farmers' interests, on every occasion advocating measures that would upbuild and condemning without malice attempts to defraud or damage.

The publisher certainly appreciates the loyalty of those who have continued so many years upon the subscription list. He trusts that you, too, have appreciated the efforts of such men as our former editor E. F. Ladd and our present editor J. H. Worst in their devotion to the cause of agriculture and the betterment of home life and farming conditions.

Let every one read carefully Mr. Worst's editorials, especially those found on the first five pages. Are they not to the point? Is he not a true friend of the farmer? Are you not with us in this work? You need an independent farm paper. We need your suggestions. You need the help of those who have made a study of scientific farming, cooperation, rural credits and marketing. We need your substantial support in the form of a subscription or renewal. You need a clean farm paper that will be an inspiration to your boys and girls. Come, let us all boost together to make this the best little farm paper of the Northwest.

Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd

The colt needs exercise but not more than it willingly takes.

A good team of horses are rarely out of place on a farm.

If butter is oversalted or overworked its delicate flavor is ruined.

The more quiet sheep are kept the more quickly they will fatten.

Generally the hogs that eat quietly and take their rest fatten readily.

To churn at a low temperature it is necessary to have a rich cream.

Young hogs are in every way the more economical producers of pork.

The best method of paying for the farm is to make it productive.

It is the satisfied quiet hog that brings money to the owner.

Similarity of breeding stock produces offspring of much greater reliability in its reproduction.

System is necessary in all things and in nothing more than in butter-making.

The value of any horse is increased or lessened by his education or training.

One decided advantage of always keeping stock in good condition is that it is always salable.

The man who grudgingly measures out the feed to his pigs will never raise a profitable hog.

A good sized horse has a wider field of usefulness than a small one and is worth more accordingly.

The amount of feed required to produce a pound of gain increases as the chicks approach maturity.

The larger the animal, other conditions being equal, the greater the amount of food required for maintenance.

Decide what kind of surplus you want and get the breed which converts its food into that product.

While inbreeding is the surest and quickest means to fix type the system weakens vitality unless very carefully followed.

A young horse should not be expected to pull as large loads or put in as many as hours at hard work as a matured one.

The cow and her offspring give us the means at least to maintain the fertility of the farm at a minimum cost.

With any farm product competition can best be met by making products

of a higher quality and by cheapening the cost.

Often horses become unsound of limb when the wear and tear are not equally distributed but certain parts bear an undue amount.

The men who attain the highest success in any business always make use of the implements or machines that are best adapted to their business.

The cow that secretes the greatest number of pounds of fat from a certain quantity of fodder consumed is the most profitable cow for butter.

It is claimed that chicks forced when young do not make so rapid a growth as they approach maturity as those fed a more moderate ration.

Young pigs must be kept growing constantly, but the best results will come with feeding a little under their capacity, rather than all they will consume.

The largest profits and quickest returns come from keeping stock in market condition at all times and selling whenever money can be made by so doing.

Warm cream and rapid churning mean a large amount of butter lost in the buttermilk as well as soft butter which is usually very hard to handle.

A work horse should always be kept in just such condition as will insure the greatest amount of muscle without making it soft by too great an admixture of faty tissue.

There is no reason why the dairyman should not know whether he is conducting his business at a profit or loss just the same as any other business man.

There is no pace so valuable or so much appreciated and so practically useful as a fast, fair, square walk and there is nothing that will cause an animal to be driven harder and kept so constantly on the other paces as a deficiency in this respect.

It is practically impossible to restore a cow to her original flow of milk after she once shrinks and on this account all reasonable care should be taken to maintain the flow during a critical period like a drought or short pasture. One of the surest ways of doing this is to plant or sow some forage crops that can be used at any time they are needed.

No animal is so good a weeder or will keep pasture land so free of plants out of place as the sheep; no animal will do as well on pasture alone during

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word. TRY IT HERE.

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FOR SALE—Improved Chester White Pigs from April litter, either sex; pedigree furnished. John F. Zimmerman, Davenport, N. D., Route 2.

WORLD'S CHAMPION A. R. RED POLLS!
Minnesota Champion A. R. Guernseys
Consistent Winners in the 1915 Show Ring
20 of our foundation cows average 601.6 lbs.
butterfat, official.

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Pure bred Percheron Horses and Shorthorn Cattle Stock for sale. Nels Knutson & Sons, R. 1, Fullerton, N. D.

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ENVILLA STOCK FARM
Cogswell, : : North Dakota

the pasture season and on light feeding in winter, provided they are well-sheltered from storms; no others enrich the fields on which they graze to so great an extent or so completely give back to them all that they take.

THE IMPORTANCE AND CARE OF PASTURES

W. B. Richards, Agricultural Agent
Dickey County

NORTH DAKOTA is making ing rapid progress in the production of livestock. This has been especially true within the past four or five years. It is evident that a large majority of the farmers of the state have come to the realization that it is essential to practice diversification for the day of practicing exclusive grain growing at a profit has passed.

Better Pastures a Great Need

It is very rare to see what would be considered a good tame grass pasture in this state. I have seen some and I am convinced it is possible to have more of them, and in fact as many as needed, providing an effort is made on the part of our farmers to get them by following the proper steps to secure them. Advance all the argument you wish in favor of the summer silo as a substitute for pasture, it can not replace the pasture on our large farms, considering the price of labor and the inability to manure all the farm to take the place of the beneficial effect of the grass. It may be possible, on the smaller farms located in the dryer sections of the state, the summer silo will prove more profitable than providing pasture, in time, as the land advances in price. This, let it be understood, is no argument against the silo and use of corn silage to

provide winter feed for livestock. For winter feed, silage is the cheapest feed that can be raised on the farm. This has been established without a doubt. The summer silo also has its place, even where pasture is provided for the stock, especially for cattle or sheep.

Here is where it is possible to put in effect a practice by which one can secure better pastures. If silage is fed to the stock when the pasture is short due to drought or over stocking, the pasture can be relieved from the drain upon it or when necessity seems to require it in order to give it an entire rest or time to recuperate, so that its life may be prolonged and its usefulness in the future increased. Both the stock and the pasture need the silage at this critical stage.

Pasture Abuse

This leads up to the subject of pasture abuses, and this to me is the key note to the reasons why we have not more better tame pastures in most sections of this state and why they have not been valued more highly. Few of our farmers have given much attention to the care of pastures to date and it is doubtless whether many realize the necessity of giving pastures careful attention or how to care for them. There is an impression prevalent that this is not a good grass country. This has been brought about because but few of our people have given grass a chance to see what it would do under our conditions. The wild grasses thrive well all over the state. This being the case, is it not good evidence that the tame grasses will also do well here if once given a chance to establish themselves?

The abuses pastures are subjected to in this state may be enumerated as follows: 1st. They are used too soon after being sown. 2nd. Over stocked. 3rd. Turn out on too early in the spring. These are three of the principal reasons why we do not de-

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Whether free text-books may be adopted without a vote?
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W. G. Crocker,

Lisbon, North Dakota

velop good tame pastures. In case one wishes to establish a good permanent pasture or keep it in pasture for several years it is very important to correct these abuses. If it is to be kept in grass but one or two years the consequences are not so great.

It is quite a common practice for most of the farmers in North Dakota to turn on a tame grass pasture the following year after it is sown in the early spring, and very early too sometimes, often before the grass has much more than peeped out of the ground. In my experience on the farm in Wisconsin, rarely ever did we think of turning on new seeding the spring following the year it was seeded. A crop of hay was taken off first and the aftermath pastured. This practice you will find is common wherever the locality boasts of or can lay claim to good pastures. This method gives the grass a chance to establish a root system and get firmly a hold of the ground so the stock can not pull it out of the ground as they do with grass that has not had time enough to grow a root system. This pulling or loosening up of the grass is more liable to occur in our loose friable fertile soils than it is in the soils that have been under cultivation longer. The reason, no doubt, that our tame grass seedings are used for pasture so early is because the need of them is so urgent for the reason provision was not made for seeding down the land early enough to meet the necessity for pasture for the stock at the proper time. Failure to get a catch often causes disappointments.

Turning out the stock on the pasture too early in the spring ruins many a pasture and especially its producing capacity for that season. If a pasture is expected to produce its maximum it must be allowed to get a reasonably good start before the stock is turned upon it. As a general practice most of the farmers of the older states follow this method if you will recall. At any rate I have strong recollections of trying to convince my father on the farm in Wisconsin when a boy that the stock should be turned out to pasture as soon as the pastures greened up. This was done to relieve us boys of the chore of having to feed the stock, for the feed had to be hauled longer distances at this season, the hay was in the bottom of the mow well packed and hard to get out, and the silage, when we had it, required quite a lift to get it out, and the field work to do, yet in spite of our pleadings, father would not allow the stock to be turned on the pasture for at least two or three weeks after we began our pleadings. He knew too well the harm of turning out too soon from

his own experience and that of his father and perhaps grandfather for they all farmed the same land in their turn.

It is impossible for grass to grow with any vigor in case it is kept close at all times and consequently the amount of feed it will produce is lessened. The sooner we make it possible to allow an accumulation of grass to gather both in the fall and spring in our pastures, the better and the sooner we will find our pastures are capable of giving good returns.

The third abuse, or over-stocking the pastures is very common everywhere one goes in the state. This is detrimental in the same way as turning on too early in the spring. Over stocking the pasture will result in keeping it very close during the dry spells. Grass that is eaten close to the ground often is killed during dry weather, resulting in a poor stand and weeds soon take possession of the vacant places. Over-stocking is as much responsible for the inferior stand of grass we secure in our pastures as anything mentioned. In starting to seed down to grass there has been a tendency to seed less land than was necessary to carry the stock on hand. Plenty of acreage should be provided in order to avoid the dangers alluded to above. At least two or three acres for each head of mature cattle should be provided depending upon the age of the pasture. Two acres to the head of good tame pasture will carry the stock in a year of average rainfall, according to my observations. However, there is need for some more definite figures than we have at present on the carrying capacity of our tame and native pastures to guide us.

It is becoming a common practice at the present time in the central states for many of the farmers to allow a good growth of grass to accumulate in some of their pastures for late fall use to take the place of feeding in the yards harvested crops. This is evidence that no one need to fear an excessive accumulation of grass in the pastures as stock will

harvest it economically if allowed, and do it at the saving of other feeds.

Native Pastures Unprofitable

In most sections of the state there is a large acreage of native grass pasture in use on land that can be used for cropping purposes. In my opinion more of these pastures in that portion of the state east of the Missouri should be substituted with tame grass pastures in consideration of the price of our lands at present, and the need for grass crops on our cultivated land to rejuvenate them. The native wild pasture is very unproductive in comparison with a good tame grass pasture, as good as it is possible to get with care in the greater portion of the eastern part of the state. This would make it possible to give all the tillable land on the farm the benefit of the fertility that comes from pasturing a piece of land. A good share of the native pastures are run out and produce very little grass. My observation and experience as County Agent during the past two years has convinced me that the farmers of Dickey County at any rate, are meeting with considerable loss from this source if the increase in the amount of pasture that might be obtained and the increase in the crops from the land after it had been rotated with a grass crop was taken into consideration. The same will hold true with the wild hay land. Much of it should be converted into alfalfa fields directly or after it has been cropped a short time.

What and How to Seed

How to get a stand of grass with grain as a nurse crop or when sown alone is a big subject in itself. What to seed in the way of grass for best results as a hay and pasture crop under our conditions is also a big subject and needs much thought on the part of our farmers in order to secure the best results.

I have some well defined ideas on this matter, however, gathered from working with the farmers of Dickey County during the past two years and I hope to have some definite knowl-

I NOW HAVE 65 HEAD OF MAMMOTH JACKS

that cannot be equaled anywhere in the world for size and quality. When you walk around among the jacks you feel as tho you were walking around among the elephants at Ringling's Circus. I am saying this to impress upon you that my jacks are so very large that they more than meet the requirements for size in your community, something you seldom can find any other place. If you have a stallion you do not need I can use him in exchange for a jack if you can come at once. I can also use a good touring car, a truck and a small gasoline plow outfit.

W. L. DeCLOW,
Cedar Rapids Jack Farm, - Cedar Rapids, Mich.

edge on the subject of pasture, both as to methods of seeding the best combination of grasses and the carrying capacity of pasture grasses of various kinds as I have a number of farmers co-operating with me on pasture projects. I shall not attempt to give anything on this subject at this time as space or time will not permit.

What I have said in reference to the care of pastures will apply to whatever grass is used for that purpose and I trust it may help stimulate more thought along this line, a phase of our farming operations, I believe, that has been neglected.

COMMUNITY BREEDING

Community breeding has given us the great breeds of livestock that are so indispensable to modern agriculture. The Jersey was developed in the Isle of Jersey; Guernseys in the Isle of Guernsey; Shorthorns in Durham and York counties in England; Herefords in Hereford county; Aberdeen Angus in county of Aberdeen; Percheron horses in LaPerche, France; Poland China hogs in Butler and Warren counties, Ohio and so on with the different breeds of horses, cattle, sheep and swine.

There is a lesson in this for present day farming. It is not that more breeds are needed but that a community raise some kind of stock so that it will become known for the high quality of its stock. The stock can be improved more cheaply when several are working together and as a rule better improvement can be brought about. The farmers of Waukesha county, Wisconsin, for instance, are co-operating in raising, selling and advertising Guernseys so that they have made the county as great a Guernsey center as the Isle of Guernsey itself and they are making it as well known. It means increased returns to these farmers. Two communities in North Dakota have started community breeding. In Morton County 12 farmers are breeding Holsteins and in Benson County over 100 farmers are raising milking shorthorns. These communities have carried on this for only a few years yet they are becoming well known and they can sell more stock than they have ready to market. When this work has been carried on 15 or 20 years the quality of the stock will have been greatly increased and practically every farmer and stockman in the country will know about these communities.

The community that wants to secure the best returns for its products whether they be livestock, potatoes, grain or something else will have to

plan together and produce a good deal of one kind and quality of product and that of high quality. In that way the people in counties in England and France have made their counties famous, in fact household words. And more than that the world has come to their door ready to exchange its gold for the quality that they have put into their livestock. The same can be done again in almost any county in the world. It would seem that a great deal along this line should be expected from many localities in North Dakota. Some have started but more are needed.

PASTURE

The best pasture grass for North Dakota is brome grass. It starts early in the spring, grows better than other grasses in dry weather and grows quite late in the fall. It produces a heavy sod that stands tramping well and that adds a lot of organic matter to the soil. The brome grass can be sown with grain as a nurse crop, 10 pounds per acre makes a good seeding.

FEEDING LITTLE PIGS

The pig should be pushed right along from birth to market. The younger the pig the more pounds gain it will make from a bushel of grain. From birth to eight weeks of age the small pig must be fed thru the sow. According to Mr. Peters, of the North Dakota Experiment Station, the milk flow the first three days is quite independent of the feed fed and that light feeding is best but after that gradually increase the feed so that a good sized sow with a litter of 8 to 12 pigs is being fed 8 to 12 pounds of grain a day while a sow nursing only 4 or 5 pigs will need 4 or 5 pounds of grain a day. Begin feeding the young pigs when 5 weeks old. A little whole wheat is good for a starter. Shelled corn can be used. From the eighth to the 12th week one-third each of ground barley, ground oats and shorts makes a good feed. Use at the rate of four and one-half pounds a day for each 100 pounds weight of pigs. Skim milk should be fed when available. Pasture should also be provided. It furnishes the cheapest feed.

THE HORSE COLLAR

The horse collar should fit snugly. It should not pinch at the crest of the neck and there should be room enough between the collar and lower part of the neck to admit the hand freely when not pulling. The contact surface of the collar should be smooth and plastic and distributed over as much bearing surface as possible. The incrustations that form on a collar should be removed daily to prevent increased friction. Sweat pads or false collars should not be used except in cases where the animal has been galled or has a collar boil and in this case a window should be cut in the pad so as to prevent the bearing surface of the collar coming in contact with the injured part.

WATERING THE HORSE

It has been demonstrated that if a horse is given grain first and then watered some of the grain is pushed from the stomach into the intestines before it is digested. This would indicate that the horse should at least have some water before being fed grain. Again, if the horse is real thirsty and is allowed to drink to excess, it will not eat as much as it should. Too much water when a horse is overheated is also dangerous. The point to keep in mind is that the horse has a small stomach that holds only a few gallons. The digestion is largely done in the stomach. If the grain feed is pushed out of the stomach before it is digested whether it be by water or hay some of the value of the feed is lost.

Grain to Feed with Milk

A little grain should be fed as soon as skim-milk feeding begins, in order to replace the butterfat removed in the cream. Two parts, by weight, of cracked corn and one of wheat bran make a good grain mixture which every farmer can readily secure and requires no special preparation. The calf should be taught to eat this grain by sprinkling a little of it in the feed box right after feeding the milk. No more grain should be fed than the calf will clean up readily.

BECOME A VETERINARIAN

Veterinarians are needed in North Dakota. The Indiana Veterinary College has many graduates in and eligible to the United States Government Service. Completely equipped laboratories, biological and chemical. Operating rooms furnished with the latest appliances. Conducted by practical veterinarians who are stock men. A firmly established institution with all the facilities for giving a young man a complete education in veterinary science. For catalogue No. 837 and information write to

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Poultry Department



CARE OF THE YOUNG CHICKS

It is important that chicks have the proper feed and care for the first three or four weeks. The following plan is being used at the North Dakota Experiment Station by E. J. Peterson, the poultryman.

"About forty-eight hours after the hatch starts in the incubator the chicks should be transferred to the brooder. Place the chicks in a basket when moving them. Cover the basket well in cold weather to prevent chilling.

After putting the chicks under the hover leave them undisturbed for a few hours. When the chicks are put in their body heat will increase the temperature somewhat. Adjust the regulator until it holds the proper temperature. Extreme variation in the brooder temperature especially during the first two weeks may cause a heavy death rate. It is a good plan to keep the hover warm enough to make the chicks spread out over the floor and not crowd. As a general average the following temperatures will prove satisfactory:

During the first week the temperature should not be allowed to fall below 95 degrees; during the second week it should be held up to 90 degrees as a minimum, after which it may be gradually reduced according to the temperature outside. It is better to run the temperature a little high rather than too low. The above temperature may not always hold good as the floor which the chicks rest on may be colder than the thermometer registers. Be sure it is warm enough. The chicks themselves will let you know when they are really comfortable. Trust the chicks as much as the thermometer. Never let them crowd under the hover especially during the night even if you have to run the thermometer to 100 degrees.

Supply Plenty of Room

The chicks must have plenty of room both outside and underneath the hover. Brooding a large number of chicks together is taking a big risk. A flock of fifty is all that should be placed in one brooder. If too many are crowded together the chicks will huddle and pile on top of one another—some may smother and others are apt to be weakened. There is seldom much difficulty in teaching artificially hatched chicks to eat and drink but as they have no mother to

teach them they need some personal attention. Remove them from the hover with the hands and help them back when they have finished feeding. This training must be continued until the chicks will come out and return to the hover themselves.

Watering and Feeding

The eggs when laid possess everything needed to develop and fully supply the growing chick with nourishment for two or three days after hatching. There can be no absolute rule in feeding for the best results as but few breeders follow exactly the same plan. I have found the following system to give satisfactory results: After the chicks are 48 to 60 hours old feed equal parts of bread crumbs and oat meal. To this mixture add a small amount of chick grit. Feed the chicks four or five times a day what they will take up in a few minutes. After the third day change gradually to hard grains. A good quality of commercial chick feed should be used. Sprinkle a little chick feed in the litter; the chicks will soon learn to scratch for it and it will keep them in good physical condition and growing. Give them plenty of exercise, cover the brooder floor with a thin layer of alfalfa or some fine litter in which small grains should be fed. Feed only what the chicks will eat up quickly so that at the next feed they will have a sharp appetite.

If a commercial chick feed cannot be had a home-mixed feed of good clean broken grains may be substituted for the commercial chick feed. The following mixture will give good results.

Cracked wheat.....	25 lbs.
Fine screened cracked corn.....	20 lbs.
Pinhead oat meal.....	10 lbs.
Crushed peas.....	3 lbs.
Millet seed.....	2 lbs.
Fine charcoal.....	3 lbs.

Feed four or five times a day the first week, after which gradually diminish the number of feeds until the end of the third week, when cracked grain may be fed three times a day. Keep grit, charcoal and water before the chicks at all times.

After the first week begin giving them meat scraps in small quantities. At the start an ounce for forty or fifty, fed daily, is sufficient. Green food should also be supplied after the first week. Feed rather sparingly

until the chicks become accustomed to it. Sprouted oats is one of the very best green foods and the chicks are always greedy for it. Mangels, green clover and lettuce are all good. In the part of the season when the chicks are on open range the green grass will be sufficient.

After the chicks are two weeks of age, equal parts of wheat bran and sifted beef scraps may be fed in a hopper and kept before them at all times. By the time they are four weeks old the following mash mixture in the hopper may be kept before them all the time: One part each by measure of bran, corn meal, wheat middlings and rolled oats. To this mixture add 10 per cent of meat scraps. After the chicks are six weeks old ground oats may be used in place of the rolled oats in the mash. At this age the small broken grains are discontinued and equal parts of wheat and cracked corn are fed three times a day and the mash is kept before them in hoppers at all times.

Chicks on open range when two months old may go upon exclusive hopper feeding. Use large outdoor hoppers which are made water proof and divided into equal compartments. In one compartment place cracked corn and wheat, in the other the dry mash.

If the birds are late hatched and need forcing it may be necessary to feed a wet mash daily or every other day, in addition, as chicks sometimes tire of an exclusive dry food ration. To sharpen up their appetites in such cases feed a wet mash in addition.

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PERCY BEALS

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School and Home

FIRE PREVENTION

From 50 to 90 per cent of all fires occurring either thru carelessness are preventable. This is the way Prof. A. D. Weeks of the North Dakota Agricultural College sums up fires after having made a careful study of the subject. He finds that the annual fire loss in North Dakota is nearly a million dollars. The annual loss in the United States, including the upkeep of fire and water companies, fire-insurance, etc., is about \$500,000,000. The buildings annually consumed in the United States would, if placed on lots of 65 feet frontage, line both sides of a street extending from New York to Chicago. During the current year the fire loss in the United States will probably far exceed that of any other year except the year of the San Francisco earthquake. Only the other day the costly engineering building of the Michigan Agricultural College burned to the ground and conflagrations have been reported from a number of cities and industrial centers. The cash loss in fires is about \$600,000 a day. One-half the value of all new buildings constructed each year is lost annually thru fires. In addition the loss of life and the number of injuries are large.

He is of the opinion that a study should be made of fires and fire prevention and if so why not in the schools, as nearly every one has to use fire, a knowledge of fire, of how different materials burn, of how heat affects the evaporation and burning of gasoline and kerosene, of how spontaneous combustion starts, of the materials that will cause it and under what conditions, etc.

It is not only the saving of property that will result from such knowledge but a saving of life. There are few but know of friends or acquaintances who have been killed or maimed thru explosions of gasoline and kerosene. A little knowledge would have prevented all this loss of life and suffering.

CATS AND BIRDS

W. C. Palmer, N. D. A. C.

Cats are the birds greatest enemy. E. H. Farbush, State ornithologist of Massachusetts has made a study of this problem for many years. He has found from his own observation and

from others that most cats catch birds. Many observers have found that cats may catch from one to as high as eight or ten birds in a day. It has been found on some islands that were rich in bird life that the introduction of cats resulted in an extermination of the birds. The cat is one of the most cruel of the animals. It loves to torture its victims. One reason why it is a little difficult to keep track of the cat's bird killing is that it is largely done at night. In case the cat does not bring the bird home to eat it but few would know that it was a bird catcher. It has also been found that cats prefer birds to rats.

No bird is safe from the cat. No matter whether its nest is on the

ground or in a treetop, the cat can reach it. Cats are also carriers of contagious diseases. Often times neglected cats become wild. They are very prolific too, producing two to four broods a year and five to nine in a brood.

Many ways have been tried of breaking cats of catching birds and of warning the birds. Tying a dead bird about a cat's neck, only had the effect of making the cat more sly in catching birds. Putting bells on the cat did not help much. An angora cat with bells brought in 32 birds one year and 28 the next year, none of which it ate.

Stray cats are the hardest on the birds. The house cat likes to hunt birds too, and if it is kept shut up at night the number of birds that it will catch will be lessened as the night or early morning is the time that most of the bird catching is done.

A bird's nest in an isolated tree can be protected by putting a piece of tin or zinc about the trunk. This being

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This stove is easy to fill and is always ready. Makes summer cooking easy. No smoke—no odor—no waste. Your curtains will stay clean longer.

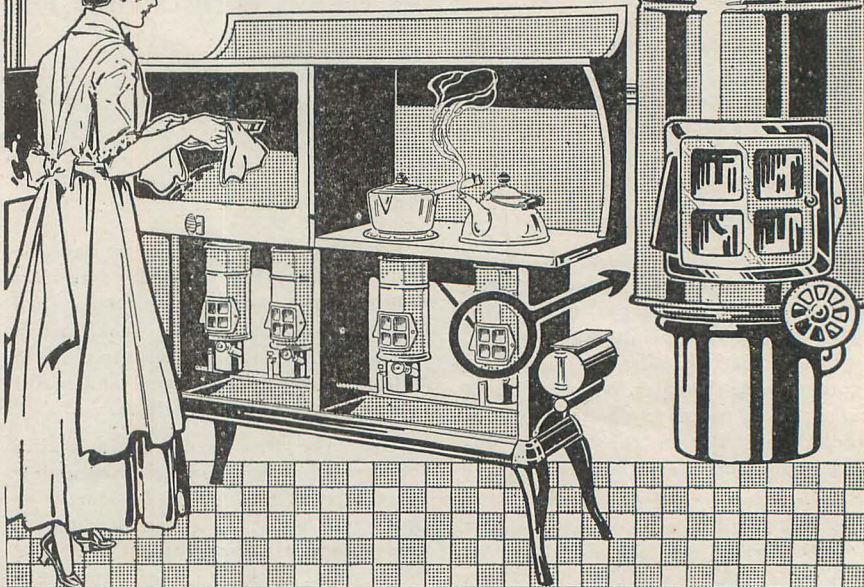
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smooth the cat can not climb over it. A good way to help the birds is to put up bird houses on poles, fastening tin or zinc around the pole so the cat can not climb up or nail on hooks that point downward so the cat can not get up.

If the bird population is to be kept up and increased the cats must be controlled in some way and especially the stray cat.

GOOD ROADS WEEK IN NORTH DAKOTA

Governor Hanna Has Designated Week of June 19-24 As Good Roads Week in N. D.

Governor L. B. Hanna has issued a proclamation, designating the week of June 19 to 24 as good roads week in North Dakota. The proclamation says:

Governor's Proclamation

One of the paramount needs of North Dakota is "Better Roads." Better roads cannot be secured except thru the co-operation of all the citizens of the state, and it appears to me that we may increase interest in better road building and maintenance, as well as secure a material improvement of road conditions by designating a given time in which we may in our respective communities actively participate in the Better Roads movement by donating one day's labor or more upon the roads.

"Inasmuch as it is possible that every one interested cannot meet on any given day for the purpose of doing such work and desiring to promote interest in roads as well as to improve their efficiency.

"Now, therefore, I, L. B. Hanna, governor, do hereby proclaim the week of June 19 to 24th inclusive as Good Roads Week in the State of North Dakota for the year 1916, and during that week I would earnestly recommend that everyone lend his assistance by donating at least one day's work upon the roads.

"I further recommend that county and township road officials, farmers' unions, commercial clubs, automobile associations and all other organizations having for their objects the promotion of the welfare of their communities, take a leading part in carrying out the purpose of this proclamation in their respective localities, in order that the results may not be impaired by lack of effective organization and leadership.

Done at the capital at Bismarck, this first day of June, A. D., 1916.

L. B. Hanna, Governor."

RURAL ROAD WORK

Suggestions to Rural Communities for the Construction and Maintenance of Roads.

That full value may be received for the money appropriated for road purposes and that the best results obtainable may be secured it is essential that the right man shall be placed in charge of road work. He should be selected not only because he actually

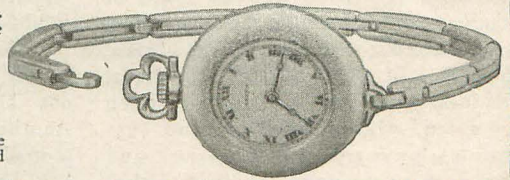
knows more about good roads than any other person in the community, but also because he can get the best results from the money furnished. It is not sufficient, however, to let the matter rest with the appointment of a road overseer. He should receive the whole-hearted support of the community in the work. It should be seen to that under the conditions and with the money furnished the community is getting what it has a right to expect in the way of road improvement. It is

The Most Practical and Beautiful Timepiece For a Lady

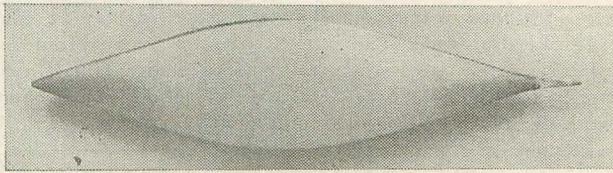
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We will send this beautiful watch P. P. to any address in U. S. A. upon receipt of \$15. Money order or bank draft.



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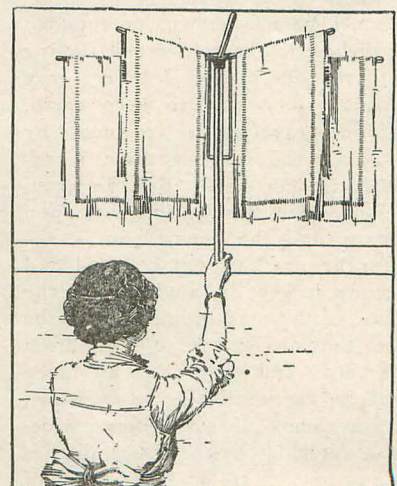
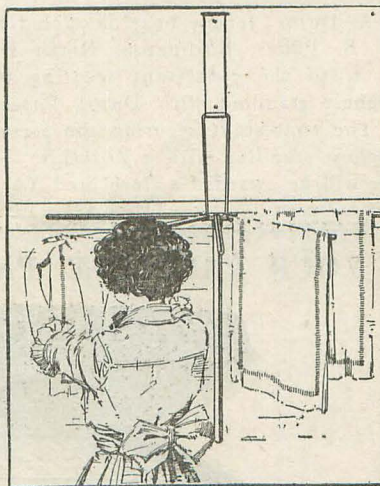
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Send only \$1.00 and your subscription will be renewed for two years and Hi-Lo Dryer will be sent you, post paid. If you prefer, we will enter two names for one year each.

NORTH DAKOTA FARMER, : : : LISBON, N. D.

well to remember that if for any reason an incompetent man is placed in charge of the work the responsibility for failure rests upon the community. There should be no other consideration, therefore, in selecting a road overseer than that of securing a man with the ability to perform the duties required. It should be realized that good roads have much to do with the prosperity of a community and that united action in the right direction is the surest and quickest way to secure them.

Department Will Assist

Where the road overseer has had but little experience in road work, or where some new and difficult problem is presented to the experienced man, the Office of Public Roads and Rural Engineering of the department, when requested, will offer advice and suggestions for carrying on the work and how best to overcome the difficulties.

To secure a satisfactory road of any type, it is absolutely necessary to remember: First, drainage; second, drainage; and third, drainage. The earth road, properly cared for, will answer satisfactorily for the traffic of many rural sections that can not afford the better types of roads; but the earth road must be well drained. After this fact is well understood, two other requirements may be taken up—the location of the road and the reduction of grades to a general average of 5 per cent.

With the exception of sandy roads, which are easiest for traveling when damp, all roads must have proper side ditches to carry away the surface water. In order to lead this surface water to the ditch, the road surface must have a crown, or rounded roof, highest in the center and sloping toward the side ditches. A very easy and satisfactory way to keep earth, clay, and gravel roads crowned, by the use of the split-log drag, is explained in Farmers' Bulletin 597, copies of which may be obtained upon application to the department.

After the road has been crowned and the crown is kept in condition by the wise use of the road drag, it should be seen to that ditches are kept free from weeds, etc., and that they are deep enough to carry off the water which runs into them. In most cases a wide, shallow ditch is best. Deep ditches are dangerous to traffic. At spaces of every few hundred feet along the roadway a culvert of some kind should be placed to carry away the water which has gathered in the ditches.

A road properly built generally will not have an average grade of more than 5 per cent. By "per cent of grade" is meant the number of feet the road rises or "climbs" for every

100 feet of its length. On a road of 1 per cent grade the horses need pull the load up a rise of only 1 foot for every 100 feet they travel. It has been found that where a horse can pull a full load on level ground; he is able to pull only one-half that load on a 5 per cent grade and only one-fourth that load on a 10 per cent grade. More trips must be made to and from market on a road with just one bad hill in order to haul the same amount that can be hauled at one trip on a level road.

Bulletin 220 of the Department of Agriculture contains pictures of small models of good roads, some of which might be very helpful in understanding the construction of a road. One model illustrates the uses of the different kinds of ditches, culverts, etc. Another model shows the relocation of a road. A steep hill on the old road has been avoided by relocating the road around the foot of the hill, saving the horses many a hard pull. Relocating the road may be expensive at first cost, but very often repays the community many times over in the saving of labor, time, horses, and equipment.

MORE PRIZES FOR CONTESTANTS

The National Duroc-Jersey Record Association is offering the following cash prizes to winners in the 1916 North Dakota Pork Production Contest using Duroc Jerseys:

1st, \$10.00; 2nd, \$9.00; 3rd, \$8.00; 4th, \$7.00; 5th, \$6.00; 6th, \$5.00; 7th, \$3.00; 8th, \$2.00.

A Duroc Jersey boar is offered by C. B. Phifer, Burlington, North Dakota, to the contestant securing the highest standing with Duroc Jerseys.

The contestant securing the second highest standing with a Yorkshire litter will be awarded a Pure bred York-

shire boar by L. A. Knoke of Willow City, N. D.

These prizes are in addition to the \$300 in cash for prizes announced in Agricultural Extension Bulletin No. 1.

HARNESSING THE FORD

The "Autopow" illustrated herewith comes all ready to attach to a Ford car by means of bolts already on the car. It will not injure or deface the car in any way and can be detached again and one would never know that it had ever been on. It takes less than two hours to make the first installation; after that, the frame can be taken off or put on in less than five minutes. The usual practice, however, is to leave the frame attached to the car all the time, then the driving shaft and pulley can be attached or detached in less than two minutes. The motor may be started and the car driven on the road with the pulley and everything in place if desired. This would be handy if the work is some distance from the house and the dinner bell rings, or if you wish to stop and run in to town for something, just to slip off the belt, load the men in the car and drive to the house or to town and on return-

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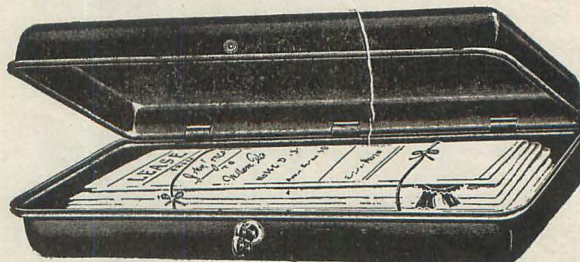


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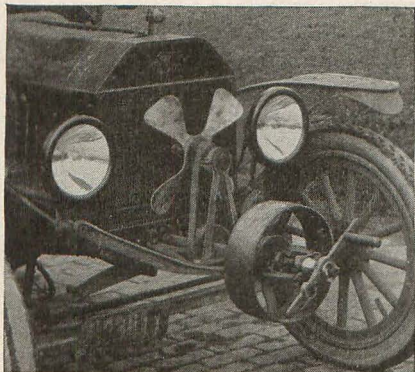
Send \$1.00. We'll enter or renew your subscription to

North Dakota Farmer for TWO years and send Box FREE.

NORTH DAKOTA FARMER, : : LISBON, N. D.

ing, slip the belt back on and you are instantly ready for work again.

It is claimed it will not strain the motor or cause it to over-heat any more than driving the car on the road; an extra fan in front of the radiator keeps it cool. There is no more wear on the car than you would get driving on the road about 15 to 20 miles per hour, in fact the only wear is on the motor, none whatever on the tires, axles transmission, etc.;—and a Ford would certainly last a long time in this kind of service.



The drive shaft connects to the front of the crank shaft thru a flexible joint or coupling, the pull of the belt is all taken by the large bearing located next to the pulley at the outer end of the bracket, so the motor gets none of this strain. The pulley runs loose on the shaft, so the belt may be slipped on, then the load engaged by throwing in a clutch which grips the pulley.

It will run a Grain Grinder, Wood Saw, Water Pump, Straw Cutter, Fanning Mill, Hay Press, Root Pulp-er, Ensilage Cutter, Grain Separator, Oat Flaker, Grind Stone, Churn, Cream Separator, Emery Stand, Concrete Mixer or small Machine Shop.

THE SONG OF THE PRAIRIES

Leal, N. D.

Editor North Dakota Farmer:

I am enclosing a bit of Dakota loyalty—done by one of my high school girls. It occurs to me that it might be suitable for publication.

Very truly yours,

A. P. Jaqua.

The Song of the Prairies

Should you ask me whence these stories
Whence these legends and traditions
With the odors of the prairies
With the dew and damp of meadows
With the singing of the crickets
With the calling of the partridge
With their frequent repetitions
Of their soft and gentle cooing?
I should answer, I should tell you,
From the land of wild roses
From the land of green meadows

From the valleys, plains and hillsides
Where the song birds sing in summer
Where they hide in flow'rs and grasses.
I repeat them as I heard them
From the Opechee, the robin,
From the meadowlark, the singer.
Should you ask me where these singers
Found these songs they sing for man-
kind,

Found these songs they sing so sweet-
ly?

I should answer, I should tell you
In the birds' nests of the meadows,
In the grasses of the prairies,
In the large and growing wheatfields
In the hoof-prints of the cattle,
In the meadows where the flowers
Grow and blossom in the grasses.
Here the birds sing of these legends
Sing the songs and old traditions.
Here all nature tells it to them
Of the land of the wild roses
Of the land of the green meadows.
How the bison roamed the prairie,
How the red men hunted for them
How the red men lived and traveled
How they rowed on rippling stream-
lets

In their bark canoes they traveled
And around them and their wigwams
Stretched, on every side, the prairie
Dotted here and there with wigwams
Of their friends and their companions.
Then these red men roamed the prai-
ries

With no thought of white man's com-
ing.

Then again the song birds tell you
How the white men came and settled
Settled in this land of flowers.

Where the song birds sing in spring-
time,

Where the flowers bloom in summer,
Where the grass turns brown in au-
tumn,

Where the winds blow cold in winter.
In this land the white men settled,
Drove the red men from their wig-
wams,

Drove the bison from the prairie.
Where the red men then abounded
Now the white men live and prosper.
Now they sow their grain in spring-
time

And it grows thru all the summer
And in autumn when it ripens
Then the white men come and har-
vest,

Thresh it and then homeward,
To the barns and to the grain bins
There to store it for the winter.
These are tales that all will tell you
Tales that Opechee, the robin,
And the meadowlark, the singer,
Tell of when they sing in summer
Sing among the grass and flowers.
If you love this land of roses
Love this land of growing wheatfields
Listen to these legend-singers
To these birds that sing tradition;
Then you'll learn of all these stories

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We will send you **FREE of Charge** one of our handsome Ormullo Gold watch fobs as here shown with Seal grain leather strap and gold plated buckle on receipt of \$1.00 for a year's subscription to the National Sportsman. Here's what you get for your money:

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A FLAG

For Your School

This will interest patrons, pupils and teachers

One Teacher Writes:

Finley, N. Dak.

March 25, 1916.

The N. D. Farmer:

I am very much pleased with the premium you sent me. It took less than two hours to secure the ten subscriptions and I feel more than paid for my work.

Thanking you for your promptness in sending me the 4x8 flag, I am

Yours truly,

MARY BIRKLAND.

Write us for our plans by which you may obtain a big flag for your school without paying a penny. A postal will do.

**NORTH DAKOTA FARMER,
Lisbon, - - - North Dakota**

Learn of this free land we live in
Better than all mankind tells you.

CARBURETERS AND MIXERS

H. O. Heldt, N. D. Experiment
Station

Many gasoline engines in use on the farm, as well as elsewhere, are working under a great handicap by not having the carbureter or mixer adjusted so as to secure the proper mixture of air and gasoline. Most small gasoline engines on the farm are equipped with a mixer which differs from a carbureter in the respect that the gasoline needle valve must be adjusted to suit different speeds in order to secure the proper mixture of gasoline and air. A carbureter, when properly set, should give the correct mixture at all speeds and loads without further adjusting.

The adjustment of a mixer will first be considered. When starting a cold engine, the air intake pipe should be almost closed off and the fuel needle valve fairly wide open, in this way a rich mixture is secured for starting. This is necessary since the cylinder being cold, most of the gasoline forms into a mist of tiny drops and only the outside of these come in contact with the air.

As soon as the engine has fired a few charges, the air inlet should be opened wide and the needle valve, regulating the gasoline, turned in until the engine runs best and until there is no trace of black smoke in the exhaust gas. The needle valve should not be tightened down so much that the engine "back-fires" or "coughs" thru the mixer.

The needle valve can be turned in a trifle after the engine is thoroly warmed up. It can also be turned in more on bright warm days than on damp, cold days; the air being more rare and light of course does not require quite so much gasoline to go with it. On engines which govern by holding the exhaust valve open, the needle valve should be adjusted so the engine runs the largest number of revolutions between each explosion when running idle without load.

A carbureter has one or more air valves which do not open at low speed but open more and more as the speed increases. The reason for this is that on high speeds the suction thru the carbureter is so great that it has a tendency to draw in too much gasoline thus causing too rich a mixture. When these auxiliary air valves open, the same velocity of suction is maintained at all speeds.

To adjust a carbureter, such as used on some small engines, on most tractors, and on practically all automobiles, the needle valve should be set about one and one-half turns open, and the throttle shut off so the motor runs slowly; then the auxiliary air valve may be adjusted so it will stay closed at low speed. The needle valve is also adjusted so the motor runs best at this speed. Now speed up the motor and adjust the auxiliary air valve until the motor runs smoothly on high speed. It may be found necessary to adjust the needle valve a trifle for low speed. If so, adjust the air valve a trifle again for high speed. Make all the final adjustments after the engine has warmed up. A carbureter will also sometimes need different adjustment for different weather conditions.

HOMEMADE FLYTRAP

**Inexpensive and Easily Constructed
Device Recommended by Entomologists for General Use.**

The homemade flytrap described below proved, in actual tests conducted by entomologists of the department, to be the most effective device of the kind for catching flies at creameries, in butcher shops, in barns, and in and around houses. This trap also is excellent for outdoor use, especially near insanitary privies and other places where flies gather and breed. It has the advantage of being inexpensive and easy to make, handle, and keep in repair.

The trap pictured is 24 inches in height, with a diameter inside the hoops of 18 inches. The cone of wire inside the trap is 22 inches high.

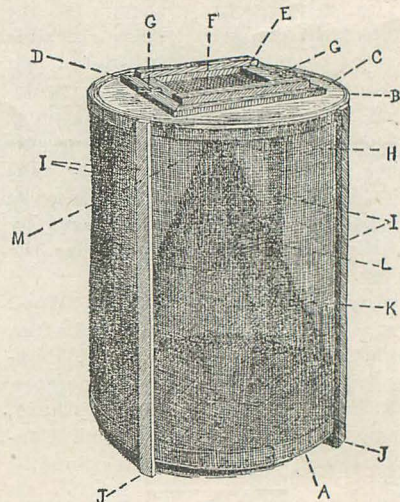
The bottom frame of the trap is made by fitting two flat barrel hoops one inside the other so that the inside diameter is 18 inches. The upper part of the frame is made in the same way, but a round board is fitted tightly into the hoops to form the top. In the top board a hole 10 inches square is cut. Parallel to the sides of this opening and about an inch from them should be nailed half-inch strips. Into these little jambs should be fitted a screened frame, which should be held tightly in place by wooden buttons.

To make the cage, nail 12 or 14 mesh screen wire 24 inches wide around the top and the bottom, and wire or solder the lap, so that no flies can escape. Outside the screen nail to the top and the bottom frames at equal intervals four 25-inch laths or strips of wood, allowing them to project 1 inch at the bottom to form legs for the trap and leave an entrance for flies into the cone.

The cone for a trap of this size should be 22 inches high and of such a diameter at the bottom that it fits exactly inside the lower hoop, to which it should be closely tacked. In making the cone it is easiest to experiment with a large sheet of stiff paper until a cone of the right size has been made. This paper when cut will be a pattern for cutting the wire screening. An easy way to make this pattern is to use a semicircle of paper with a radius of 24 inches. It will take about two-thirds of such a semicircle to make the pattern for a cone of the size described.

Before inserting the cone, make a small hole at the point or apex, thru which the flies can crawl into the trap.

To bait the trap, place beneath the cone on a flat saucer or a piece of board banana skins, sirup, meat, or other foods which seem to attract flies. The flies will fly upward from the bait into the cone and continue until they go thru the small hole into the cage. To remove the flies from the cage, scald them and pour them out of the opening at the top.



Conical hoop flytrap; size view.
(A) Hoops forming frame at bottom.
(B) Hoops forming frame at top.
(C) Top of trap, made of barrel head.
(D) Strips around door. (E) Door frame. (F) Screen on door. (G) Button holding door. (H) Screen on outside of trap. (I) Strips on side of traps between hoops. (J) Tips of these strips projecting to form legs. (K) Cone. (L) United edges of screen forming cone. (M) Aperture at apex of cone.

DAISY FLY KILLER



placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Seasonable Receipts

Mrs. Sadie Baird, Editor

FOOD FOR SICK

Onions as a Nervine

Onions are almost the best nervine known. No medicine is so useful in cases of nervous prostration, and there is nothing else that will so quickly relieve and tone up a worn out system. Onions are useful in cases of coughs, colds, influenza; in consumption, insomina, hydrophobia, scurvy, gravel, kidney and liver complaints. Eaten every other day, they soon have a clearing and whitening effect upon the completion.

Scraped Beef

Take a small piece of raw steak scraped into fine bits and remove the hard and gristly parts. Put into a pan over a fire and heat thoroly, stirring constantly. Season with pepper and salt; and serve.

Beef Soup

One pound of steak, cut into small dice; put into a mason jar and add two cupfuls of water; pepper and salt and screw on the top. Place a cloth around the jar and put it into a kettle of cold water. Let it come to a boil and boil slowly three hours. When done drain the soup and serve with strips of thin toast.

Cornmeal Gruel

One tablespoonful cornmeal, one-half tablespoonful flour, one-fourth

teaspoonful salt, one and one-half cupful boiling water. Cook two hours in double boiler. Strain. Serve with cream or milk.

Eggs, Soft Cooked

Boiling renders the white part tough and indigestible. Fill a crock with boiling water. Drop in egg. Cover. Set back on the stove where they will not quite boil. Let stand eight minutes.

Barley Water

Two ounces of pearl barley, washed well in cold water, two quarts of boiling water poured on the barley and boiled down to one quart. Flavor with lemon rind and sugar to taste. The juice of lemon or orange may be added if the patient can take acids.

Egg Lemonade

Two tablespoonfuls of sugar, one egg, three tablespoonfuls cold water, one lemon. Beat sugar and eggs thoroly; add the water and lemon juice. Put chipped ice in a glass; pour in mixture and fill with ice water.

Egg Nog

Beat one egg until creamy; add two tablespoonfuls sugar and two teaspoonfuls of vanilla; pour into a glass and fill up with fresh milk. Stir well.

Orangeade

Wipe one orange clean; cut and squeeze and remove seeds; add one teaspoonful sugar or a little more if the orange is large; one cupful boiling water and a little lemon juice. Let get cold. Pour into a tall glass. Add cracked ice and one slice of orange on top.

Orangeade and Albumen

Make orangeade as above and beat white of egg until slightly foamy. Stir into the orangeade.

Breaded Veal

Put half lard and butter into frying pan, or bacon fat and butter, and let this become very hot. Take veal steak and dip into beaten egg; then roll in bread crumbs; then drop into this hot fat and brown on both sides. Season with salt and pepper. Cover and cook slowly on back of stove one hour.

To Cook Young Chicken

Dress them and joint as usual; place in dripping pan and just cover with sweet cream. Season with salt, pepper and a little butter, and by the time the cream is nearly cooked away the chicken will be done. There should be enough cream to serve the mashed potatoes as gravy.

Strawberry Conserve

Three quarts strawberries, three quarts sugar, one pint pineapple, one pint sugar. Cook each separately 15 minutes; put together and cook 15 minutes. Add one pound blanched almonds.

Rhubarb Lemonade

Cut up in rather large pieces, without peeling, two quarts of rhubarb; cover with water and boil ten minutes. Put into a jar the yellow rind of a lemon and strain over it the juice of rhubarb. Sweeten to taste.

Veal and Ham Sandwiches

Boil one pound veal until very tender; chop fine; mix with one pound boiled ham; moisten with salad dressing and cream and spread on sandwiches. Enough for 150 sandwiches.



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Great!”

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Which Will You Have

Here are two cans of Paint.

Both are exactly the same size.

One will cost you \$2.25 per gallon. The other will cost perhaps as little as \$1.50 per gallon, but the Mound City Horse Shoe Brand at \$2.25 per gallon will cost you less in the end.

Reason? Simple enough.

Because a gallon of "Horse Shoe Paint" will cover a larger surface than the cheaper grade, and fewer gallons are required for the job. By actual test you will find that six gallons of "Horse Shoe Paint" (enough for two coats on a house measuring 2100 square feet) will go as far as ten gallons of the \$1.50 kind.

In other words, you invest \$13.50 in "Horse Shoe Paint," against \$15.00 in the cheaper grade.

Not only this, but the Horse Shoe Brand is bound to outwear the other two to one, making the Horse Shoe Brand far more economical in the end.

You save on the total cost of material.

You save in labor, because of the long life of the Horse Shoe Brand.

You save once more in the satisfaction of knowing that your property is beautified and protected with the highest quality of painting material that modern skill and science has yet developed.

AGAIN!! Mr. Property Owner:—

Which will you have?

Mound City "Horse Shoe Brand" Paint

Sold only by

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Write for name of your nearest dealer

Mound City Paint & Color Co.

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